

The Engineering Design Process is an eight-step process for problem solving that I first became familiar with in sixth grade. Since then I have used it to write a scholarship-winning essay, teach Geography to friends, tile a floor, find a prom date, and work at a preschool. It may be the most useful and important thing I have learned as a student.

My sixth-grade class was the largest ever in our school district. With years ahead before new buildings could be constructed, the solution was to send extra students to a spare community building for their middle school education. In an attempt to turn this overflow bin into an attractive option, the school board decided to make it an educational experiment. The new campus would be driven by the principles of something called STEM Education, an all-but-unknown term in 2009.

I went to the STEM Center because I was terrified of middle school. I also went to the STEM Center because it was in my backyard. I did not go to the STEM Center because I was particularly interested in science, technology, engineering, or math. My interests were books, music, and writing. However, because my interests also included avoiding the big middle school with its intimidating maze of hallways and crowds of people, when asked if I wanted to give this a try I said, "Sure, why not?"

The first hint that my new school was going to be somewhat non-traditional was the fact that our chairs had not arrived. On the first day we had smartboards, 120 students, 7 teachers, and a pile of carpet squares. My math teacher was unperturbed. With our carpet squares in a circle, we spent the day designing our seating chart on graph paper. It was like no math lesson I had ever experienced.

I don't think everyone would say that their middle school years were among the best in their lives. I would. I learned slope by designing a golf course. We sat on stability balls and curated project fairs. Many people don't realize that it takes more than an acronym to make education STEM; it takes teamwork, problem-solving, and project-based learning. I worked in small groups to complete projects that united threads from all my classes and individual interests. Often our teams would gather in a classroom and stay there all day, utilizing all our subjects in our work and rendering the musical chairs game of bells and class periods obsolete. All around there was the Engineering Design Process: define the problem, research the problem, brainstorm solutions, choose the best solution, build a model, test your solution, communicate your results, and redesign as needed.

So what's the problem? The problem is that only a few students in my district experienced the kind of immersive, fascinating education that allowed my love of learning to flourish. Only a few nationwide experience project-based learning at all, or get to develop the teamwork and twenty-first century skills that are essential in the world today.

If I hadn't chosen the small middle school in my backyard, I might think that there was nothing to be done. But I don't believe that. I believe in problems and solutions. I believe in redesigning where redesigning is necessary. And I would be hard-pressed to find a place where redesign is needed more desperately than our classrooms.

So I've been brainstorming, and I have a solution to test. The solution is me. I believe that as a teacher, I can help students nurture their intrinsic love of learning. I believe that project-based, interdisciplinary education is a key to designing lives that are fulfilling and valuable. The torch was passed to me at the STEM Center, and I want to pass it on.

And if I hit a wall? The Engineering Design Process will be there for me. I will define the problem and get working. I will redesign and try again.